

erty. 1. The set of instructions which a computing or data-processing system is capable of performing. 2. The set of instructions which an automatic coding system assembles. (in'strāk-shən, set)

**Instruction time** [COMPUT SCI] The time required to carry out an instruction having a specified number of addresses in a particular computer. (in'strāk-shən, tīm)

**Instruction transfer** [COMPUT SCI] An instruction which transfers control to one or another subprogram, depending upon the value of some operation. (in'strāk-shən, tranz-fər)

**Instruction word** [COMPUT SCI] A computer word containing an instruction rather than data. Also known as coding line. (in'strāk-shən, wərd)

**Instrument** [ENG] A device for measuring and sometimes also recording and controlling the value of a quantity under observation. (in'strə-mənt)

**Instrumental analysis** [ENG] The use of an instrument to measure a component, to detect the completion of a quantitative reaction, or to detect a change in the properties of a system. (in'strə-mənt-əl ə-nal-ə-səs)

**Instrumental conditioning** See operant conditioning. (in'strə-mənt-əl kən-dish-ən-ɪŋ)

**Instrument approach chart** [NAV] An aeronautical chart designed for use under instrument flight conditions, for making instrument approach and letdown to contact flight conditions in the vicinity of an aerodrome. (in'strə-mənt ə-prəʊʃ, ʧɑ:rt)

**Instrument approach procedure** [NAV] A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the initial approach to a landing, or to a point from which a landing can be made visually. (in'strə-mənt ə-prəʊʃ prə-sē-jər)

**Instrument approach system** [NAV] An aircraft navigation system that furnishes guidance in the vertical and horizontal planes to aircraft during descent from an initial-approach altitude to a point near the landing area; completion of a landing requires guidance to touchdown by visual or other means. (in'strə-mənt ə-prəʊʃ, sistəm)

**Instrumentation** [ENG] Designing, manufacturing, and utilizing physical instruments or instrument systems for detection, observation, measurement, automatic control, automatic computation, communication, or data processing. (in'strə-men-tā-shən)

**Instrumentation amplifier** [ELECTR] An amplifier that accepts a voltage signal as an input and produces a linearly scaled version of this signal at the output; it is a closed-loop fixed-gain amplifier, usually differential, and has high input impedance, low drift, and high common-mode rejection over a wide range of frequencies. (in'strə-men-tā-shən əm-plə-faɪ-ər)

**Instrument correction** [ENG] A correction of measurements made on a unit under test for either inaccuracy of the instrument or eroding effect of the instrument. (in'strə-mənt kə-rek-shən)

**Instrumented buoy** [OCEANOGR] An uncrewed floating structure for the mounting, operation, data collection, and transmission of meteorological and oceanographic parameter-measuring systems. (in'strə-men-təd 'bɔɪ)

**Instrument flight** [NAV] A flight in which the navigation of the aircraft is controlled solely by reference to instruments. (in'strə-mənt, flit)

**Instrument flight rules** [NAV] Regulations governing flying when weather conditions are below the minimum for visual flight rules. Abbreviated IFR. (in'strə-mənt 'flit, rʌlz)

**Instrument housing** [ENG] A case or enclosure to cover and protect an instrument. (in'strə-mənt, haʊ-zɪŋ)

**Instrument landing** [NAV] A landing made through the use of a system of electronic beacons and radar. (in'strə-mənt, 'lan-dɪŋ)

**Instrument landing system** [NAV] A system of radio navigation which provides lateral and vertical guidance, as well as other navigational parameters required by a pilot in a low approach or a landing. Abbreviated ILS. (in'strə-mənt, 'lan-dɪŋ, sistəm)

**Instrument landing system localizer** [NAV] System of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway. (in'strə-mənt, 'lan-dɪŋ, sistəm, lɒ-kə-laɪ-zər)

**Instrument landing system reference point** See ILS reference point. (in'strə-mənt, 'lan-dɪŋ, sistəm, ref-rəns, pɔɪnt)

**Instrument multiplier** [ELEC] A highly accurate resistor used in series with a voltmeter to extend its voltage range. Also known as voltage multiplier, voltage-range multiplier. (in'strə-mənt 'mʌlti-plaɪ-ər)

**Instrument oil** [MATER] Special grade of lubricating oil that has been refined to have oxidation resistance and gum resistance, that has compatibility with electrical insulation, and that prevents tarnish or oxidation of contacted metal surfaces; used to lubricate instruments and other intricate mechanisms. (in'strə-mənt, 'ɔɪl)

**Instrument panel** [ENG] A panel or board containing indicating meters. (in'strə-mənt, pan-əl)

**Instrument reading time** [ENG] The time, after a change in a measured quantity, which it takes for the indication of an instrument to come and remain within a specified percentage of its final value. (in'strə-mənt 'rɛd-ɪŋ, tīm)

**Instrument resistor** [ELEC] A high-accuracy, four-terminal resistor used to bypass the major portion of currents around the low-current elements of an instrument, such as a direct-current ammeter. (in'strə-mənt rɪ-zɪstər)

**Instrument science** [ENG] The systematically organized body of general concepts and principles underlying the design, analysis, and application of instruments and instrument systems. (in'strə-mənt, sɪ-əns)

**Instrument shelter** [ENG] A boxlike structure designed to protect certain meteorological instruments from exposure to direct sunshine, precipitation, and condensation, while providing adequate ventilation. Also known as thermometer screen; thermometer shelter; thermoscreen. (in'strə-mənt, shel-tər)

**Instrument shunt** [ELEC] A resistor designed to be connected in parallel with an ammeter to extend its current range. (in'strə-mənt, shənt)

**Instrument system** [ENG] A system which integrates one or more instruments with auxiliary or associated devices for detection, observation, measurement, automatic control, automatic computation, communication, or data processing. (in'strə-mənt, sistəm)

**Instrument transformer** [ELEC] A transformer that transfers primary current, voltage, or phase values to the secondary circuit with sufficient accuracy to permit connecting an instrument to the secondary rather than the primary; used so only low currents or low voltages are brought to the instrument. (in'strə-mənt tranz-fɔ:m-ər)

**Instrument-type relay** [ELEC] A relay constructed like a meter, with one adjustable contact mounted on the scale and the other contact mounted on the pointer. Also known as contact-making meter. (in'strə-mənt, tɪp 'rɛ-lā)

**Instrument weather** [METEOROL] Route or terminal weather conditions of sufficiently low visibility to require the operation of aircraft under instrument flight rules (IFR). Also known as IFR weather. (in'strə-mənt, weð-ər)

**Insulated** [ELEC] Separated from other conducting surfaces by a nonconducting material. (in-sə-lād-əd)

**Insulated conductor** [ELEC] A conductor surrounded by insulation to prevent current leakage or short circuits. Also known as insulated wire. (in-sə-lād-əd kən-dəkt-ər)

**Insulated-gate field-effect transistor** See metal oxide semiconductor field-effect transistor. (in-sə-lād-əd 'gāt, fɛld i, fekt tran-zɪstər)

**Insulated-return power system** [ELEC] A system for distributing electric power to trains or other vehicles, in which both the outgoing and return conductors are insulated, in contrast to a track-return system. (in-sə-lād-əd rɪ'təm 'paʊ-ər, sistəm)

**Insulated-substrate monolithic circuit** [ELECTR] Integrated circuit which may be either an all-diffused device or a compatible structure so constructed that the components within the silicon substrate are insulated from one another by a layer of silicon dioxide, instead of reverse-biased pn junctions used for isolation in other techniques. (in-sə-lād-əd, səb, stræt, mən-ə-lith-ik 'sɜ:kət)

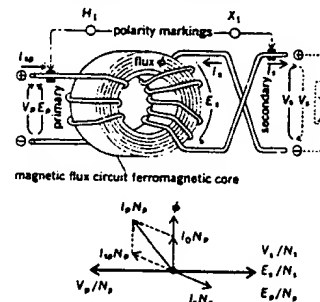
**Insulated wire** See insulated conductor. (in-sə-lād-əd 'wɪr)

**Insulating board** [MATER] Any board used in a wall or ceiling to provide insulation. (in-sə-lād-ɪŋ, bɔ:rd)

**Insulating compound** [MATER] A liquid, at low temperatures, which is poured into joint boxes and allowed to solidify; as a poor conductor of heat and electricity, it provides good insulation. (in-sə-lād-ɪŋ, kəm, paʊnd)

**Insulating concrete** [MATER] Concrete with insulating prop-

## INSTRUMENT TRANSFORMER



A simple instrument transformer. (General Electric Co.)

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# DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS

Fifth Edition

# **McGraw-Hill Dictionary of Scientific and Technical Terms**

## **Fifth Edition**

**Sybil P. Parker**

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On the cover: Photomicrograph of crystals of vitamin B<sub>1</sub>.  
(Dennis Kunkel, University of Hawaii)

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